Stratified Ventless Trap Survey

This project will develop a survey that is specifically targeted to sampling lobster over a variety of habitats in Massachusetts Bay and Buzzards Bay. The design allows us to broaden the size distribution of lobster sampled and more accurately characterize the population.

Survey Goals

- Accurately characterize the relative abundance and size distribution of American lobster
- Assess the relative importance of bottom sediments and depth to lobster distribution
- Act as a pilot project for coast-wide monitoring
- Involve industry in stock assessment process and foster better communication

Stratification Scheme

- Grid cells defined by a combination of sediment type and depth = "strata"
- Several sampling stations drawn from each strata

Sampling Strategy

- Six pot trawls at each station
- Three day soak
- Hauled twice monthly

Preliminary Results – Mass Bay 2004

The graph below shows the abundance of various size classes of lobsters in four sediment types. The two smallest size classes of lobster are most abundant in boulder and cobble habitat. These findings make sense from an ecological standpoint because:

- Small lobsters are dependent on shelter for protection
- Boulder and cobble habitat have more options for shelter than do the featureless mud and sandy gravel habitats


Lobster catch in four sediment types
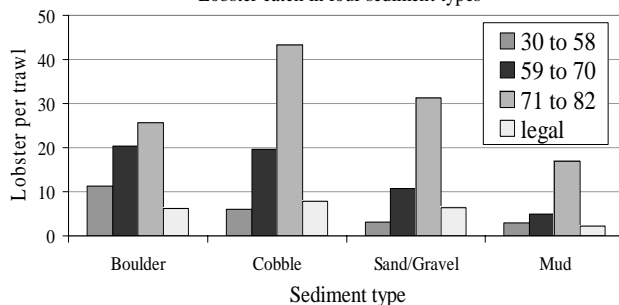
Shell Disease

Massachusetts waters have been sampled for shell disease since the year 2000. The graph indicates the proportion of lobsters with shell disease over time.

Occurance of Lobsters with Shell Disease in Massachusetts Regions
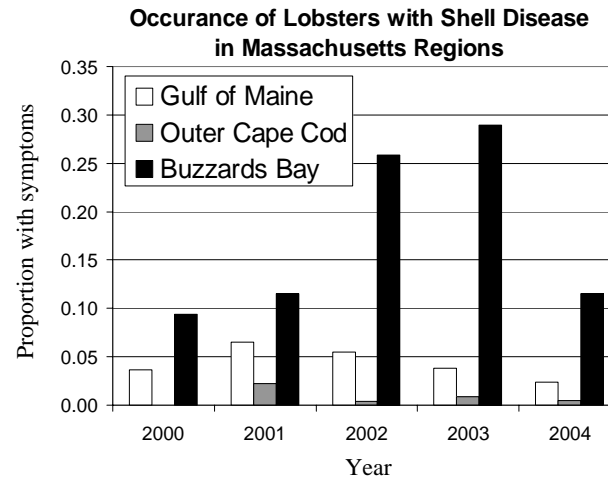
This map depicts the average severity of shell disease symptoms in Massachusetts waters from 2000-2004

Severity Index

- Very Low
- Low
- Moderate
- High
- Very High
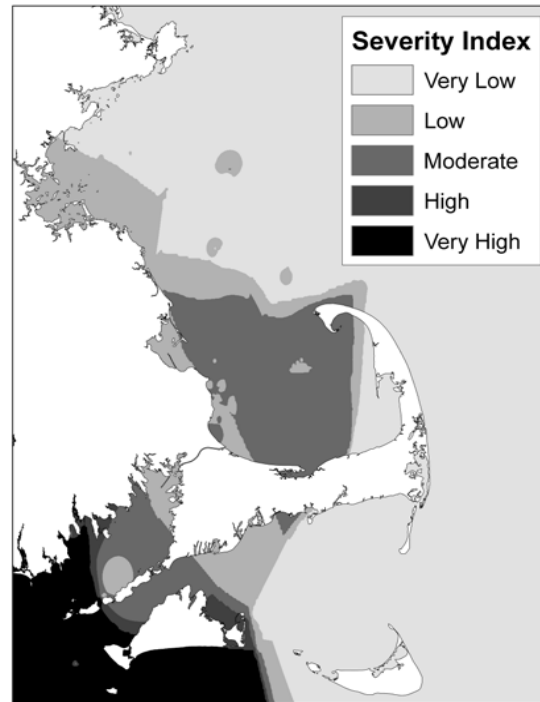
Coastal Lobster Project
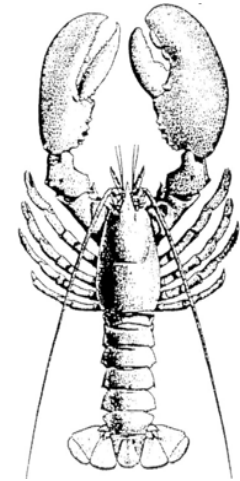
MarineFisheries uses a multi-faceted approach to monitoring the American lobster resource and fishery in Massachusetts coastal waters. Through applied research and monitoring, our goal is to accurately describe stock processes and to foster stewardship through partnerships with stakeholders.

Division of Marine Fisheries
Paul Diodati, *Director*

Department of Fisheries and Game
David M. Peters, *Commissioner*

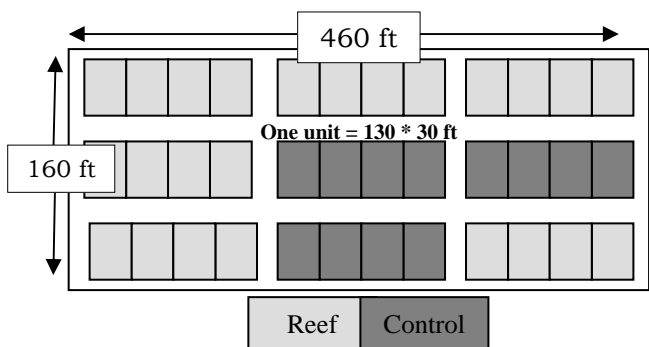Executive Office Of Environmental Affairs
Ellen Roy Herzfelder, *Secretary*

Commonwealth of Massachusetts
Mitt Romney, *Governor*

Marine Fisheries
A Commonwealth of Massachusetts Agency

Habitat Enhancement in Massachusetts Bay

460 ft

One unit = 130 * 30 ft

160 ft

Reef   Control

MADMF is providing mitigation for the perceived impacts of the Hubline natural gas pipeline construction through the enhancement of hard bottom habitat in Massachusetts Bay.

REEF PROJECT GOALS

- Reduce the perceived impacts of Hubline construction through the enhancement of hard bottom habitat
- Augment larval lobster settlement
- Provide shelter for multiple life stages of organisms
- Evaluate success of reef with a monitoring program
- Compare species settlement with control areas

Four primary zones that are located within Boston, Hull, Marblehead, Salem, and Beverly have been identified as candidate areas for the reef.
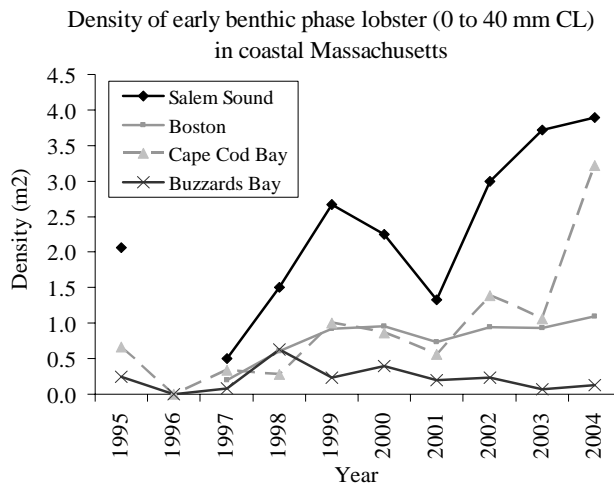

50-75 cm boulder

30-45 cm boulder

6-11 cm cobble   12-25 cm cobble
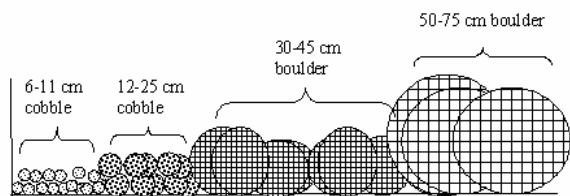
This figure represents a cross-section through a single 4300 ft^2 reef unit. Four different rock sizes (cobbles and boulders) will be used to target different life history stages of organisms.
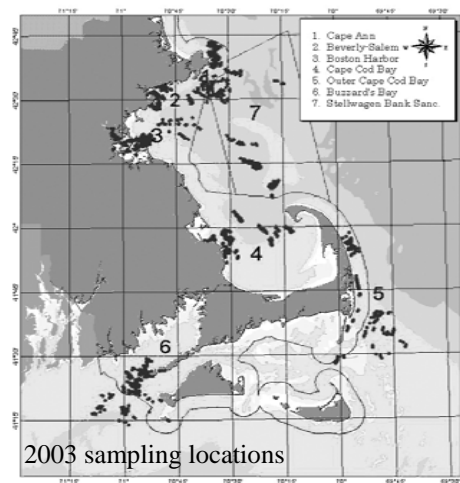
Early Benthic Phase Lobster Monitoring
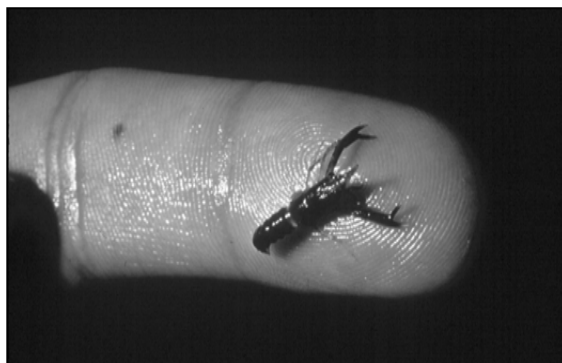
In 1995 MADMF initiated a suction sampling program as a means to monitor year class strength of American lobster. Density indices of newly settled post-larval lobster are generated from these data and important nursery habitat is documented. Eighteen sites are sampled coastwide from August through early September, corresponding with peak settlement.

Density of early benthic phase lobster (0 to 40 mm CL) in coastal Massachusetts

Legend:
- Salem Sound
- Boston
- Cape Cod Bay
- Buzzards Bay

Density (m2) — Year

Commercial Trap Sampling Program

1. Cape Ann
2. Beverly-Salem
3. Boston Harbor
4. Cape Cod Bay
5. Outer Cape Cod Bay
6. Buzzard's Bay
7. Stellwagen Bank Sanc.

2003 sampling locations

This lobster monitoring program, initiated in May of 1981, records biological and catch per unit effort data. Conducted aboard commercial vessels, MADMF biologists sample every lobster caught during normal lobstering operations. Each region is sampled a minimum of once per month, May through November, assessing variations in population parameters due to environmental factors, fishing pressure, and regulatory changes.

Catch per unit effort of marketable lobster from commercial trap sampling and Massachusetts inshore lobster landings, 1981 - 2003

CTH3 = Catch per trap haul – standarized 3 day set

Landings (millions of pounds)

Legend:
- CTH'3
- Landings

Year